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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/577,645	05/01/2006	Hideaki Hayashi	HAYASHI 8	1759
1444 7590 09/25/2007 BROWDY AND NEIMARK, P.L.L.C. 624 NINTH STREET, NW SUITE 300 WASHINGTON, DC 20001-5303			EXAMINER HEINCER, LIAM J	
			ART UNIT 1709	PAPER NUMBER
			MAIL DATE 09/25/2007	DELIVERY MODE PAPER

Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Office Action Summary

Application No.

10/577,645

Applicant(s)

HAYASHI ET AL.

Examiner

Liam J. Heincer

Art Unit

1709

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on February 1, 2007.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 21-63 is/are pending in the application.
- 4a) Of the above claim(s) 26-63 is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 21-25 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All b) ☐ Some * c) ☐ None of:
- ☐ Certified copies of the priority documents have been received.
 - ☐ Certified copies of the priority documents have been received in Application No. _____.
 - ☒ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|--|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413) |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | Paper No(s)/Mail Date. _____ |
| 3) <input checked="" type="checkbox"/> Information Disclosure Statement(s) (PTO/SB/08) | 5) <input type="checkbox"/> Notice of Informal Patent Application |
| Paper No(s)/Mail Date <u>5/2007</u> . | 6) <input type="checkbox"/> Other: _____ |

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DETAILED ACTION

Election/Restrictions

Restriction is required under 35 U.S.C. 121 and 372.

This application contains the following inventions or groups of inventions which are not so linked as to form a single general inventive concept under PCT Rule 13.1.

In accordance with 37 CFR 1.499, applicant is required, in reply to this action, to elect a single invention to which the claims must be restricted.

Group I, claim(s) 20-25, drawn to a method of separating and recovering an acid/sugar solution and a lignophenol derivative.

Group II, claim(s) 26-63, drawn to an apparatus for recovering an acid/sugar solution.

The inventions listed as Groups I and II do not relate to a single general inventive concept under PCT Rule 13.1 because, under PCT Rule 13.2, they lack the same or corresponding special technical features for the following reasons: the technical feature of Group I is the method of separating the solid-liquid composition. However, this is not a special technical feature because it is not common to both Groups I and II, as group II does not require the particulars of the method of group I.

During a telephone conversation with applicant's attorney Sheridan Niemark on September 17, 2007 a provisional election was made with oral traverse to prosecute the invention of Group I, claims 20-25. Affirmation of this election must be made by applicant in replying to this Office action. Claims 26-63 are withdrawn from further consideration by the examiner, 37 CFR 1.142(b), as being drawn to a non-elected invention.

Applicant is reminded that upon the cancellation of claims to a non-elected invention, the inventorship must be amended in compliance with 37 CFR 1.48(b) if one or more of the currently named inventors is no longer an inventor of at least one claim remaining in the application. Any amendment of inventorship must be accompanied by a request under 37 CFR 1.48(b) and by the fee required under 37 CFR 1.17(i).

Claim Rejections - 35 USC § 112

The following is a quotation of the second paragraph of 35 U.S.C. 112:

The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

Claims 24 and 25 are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

Claim 24 recites the limitation "a third and fourth dispersion" in line 4. There is insufficient antecedent basis for this limitation in the claim. The claim does not contain a second dispersion, causing the third and fourth dispersion to lack antecedent basis. For the purpose of further examination, this will be interpreted as being a second and third dispersion.

Claim Rejections - 35 USC § 103

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

This application currently names joint inventors. In considering patentability of the claims under 35 U.S.C. 103(a), the examiner presumes that the subject matter of the various claims was commonly owned at the time any inventions covered therein were made absent any evidence to the contrary. Applicant is advised of the obligation under 37 CFR 1.56 to point out the inventor and invention dates of each claim that was not commonly owned at the time a later invention was made in order for the examiner to consider the applicability of 35 U.S.C. 103(c) and potential 35 U.S.C. 102(e), (f) or (g) prior art under 35 U.S.C. 103(a).

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Claims 20 and 21 are rejected under 35 U.S.C. 103(a) as being unpatentable over Funaoka (US Pat. 6,632,931) in view of Hunaoka et al. (EP 1,273,632).

Considering Claims 1 and 2: Funaoka (US Pat. 6,632,931) teaches putting a reaction mixture of a lignocelulosic material (24:65-67), a phenol derivative (25:3-5) and an acid (25:12-15) into water (25:15-17), and leaving the mixture to stand (25:17-18), and then carry out solid-liquid separation (25:20-24).

Funaoka does not teach the water as being present in a ratio of 0.6 to 6 times that of the mixture by volume. However, Hunaoka et al. teaches adding water in an amount that is substantially the same as the amount of the reaction mixture (¶0064-65). Funaoka and Hunaoka et al. are combinable as they are concerned with the same field of endeavor, namely lignin-phenol separations. It would have been obvious to a person having ordinary skill in the art at the time of the invention to have used water in the amount of Hunaoka et al. in the process of Funaoka, and the motivation to do so would have been to reduce the acid concentration and stop the reaction (¶0065).

Claims 22, 24, and 25 are rejected under 35 U.S.C. 103(a) as being unpatentable over Funaoka (US Pat. 6,632,931) in view of Hunaoka et al. (EP 1,273,632) as applied to claim 20 above, and further in view of Tournier et al. (US 4,511,433).

Funaoka and Hunaoka et al. collectively teach the process of claim 20 as shown above.

Considering Claim 22: Funaoka does not teach the separation as being carried out in a filtration apparatus. However, Tournier et al. teaches separating lignin-phenol from cellulose (34-37) through filtration (6:38-41). Funaoka and Tournier et al. are combinable as they are concerned with the same field of endeavor, namely lignin-phenol separations. It would have been obvious to a person having ordinary skill in the art at the time of the invention to have used filtration in the method of Funaoka as in Tournier et al., and the motivation to do so would have been, as Tournier et al. suggests, it is an economical process (6:61-62).

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Considering Claims 24: Funaoka does not teach subjecting the solid material to multiple dispersions and separations. However, Tournier et al. teaches repeating the delignification/dispersion and separation (8:54-60). It would have been obvious to a person having ordinary skill in the art at the time of the invention to repeat the delignification as in Tournier et al. in the process of Funaoka, and the motivation to do so would have been, as Tournier et al. suggests, to increase the degree of recovery (9:1-2).

Considering Claim 25: Funaoka does not teach reusing the liquid phase. However, Tournier et al. teaches reusing the liquid phase of the delignification (8:29-35). It would have been obvious to a person having ordinary skill in the art at the time of the invention to have reused the liquid phase in the process of Funaoka as in Tournier et al., and the motivation to do so would have been, as Tournier et al. suggests, to decrease the amount of solvent used in the process (8:66-67).

Claim 23 is rejected under 35 U.S.C. 103(a) as being unpatentable over Funaoka (US Pat. 6,632,931) in view of Hunaoka et al. (EP 1,273,632) as applied to claim 20 above, and further in view of Mattison et al. (US Pat. 4,936,999).

Funaoka and Hunaoka et al. collectively teach the process of claim 20 as shown above.

Considering Claim 23: Funaoka does not teach a second filtration. However, Mattison et al. teaches filtering a liquid twice (14:34-45). Funaoka and Mattison et al. are combinable as they are concerned with the same technical difficulty, namely phase separation. It would have been obvious to a person having ordinary skill in the art at the time of the invention to have added the second filtration step of Mattison et al. to the process of Funaoka, and the motivation to do so would have been, as Mattison et al. suggests, to increase the phase separation (14:34-45).

The prior art made of record and not relied upon is considered pertinent to applicant's disclosure. See PTO form 892.

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Correspondence

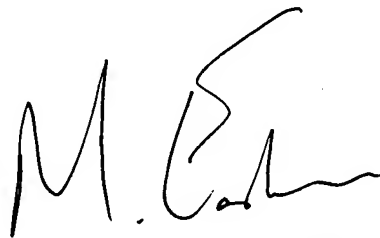
Any inquiry concerning this communication or earlier communications from the examiner should be directed to Liam J. Heincer whose telephone number is 571-270-3297. The examiner can normally be reached on Monday thru Friday 7:30 to 5:00 EST.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Mark Eashoo can be reached on 571-272-1197. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

LJH

September 18, 2007


MARK EASHOO, PH.D.
SUPERVISORY PATENT EXAMINER

9/21/07